Distributed by:

JAMECO® ELECTRONICS

www.Jameco.com ✦ 1-800-831-4242

The content and copyrights of the attached material are the property of its owner.

Surface Mount Type

Series : VS

Jameco Part Number 193009

■ Features

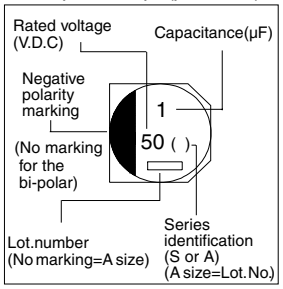
- General purpose
- Life time: 85°C 2000 h
- 5.5 mm height (≦φ6.3)

■ Specifications

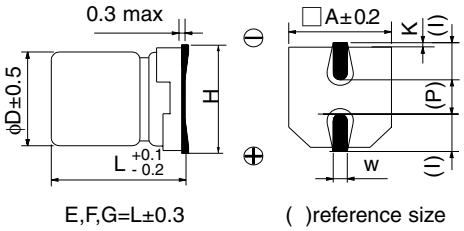
Operating Temp. Range	-40 to +85°C										
Rated W.V. Range	4 to 100 V .DC										
Nominal Cap. Range	0.1 to 1500μF										
Capacitance Tolerance	± 20 % (120Hz/+20°C)										
D.C. Leakage Current	I ≦ 0.01 CV or 3 (μA) after 2 minutes . (Bi-polar: I≦0.02 CV or 6 (μA)) (Whichever is greater)										
Dissipation Factor (tan δ)	Refer to standard products table.										
Characteristics at Low Temperature	W.V. (V)	4	6.3	10	16	25	35	50	63	100	(Impedance ratio max at 120 Hz)
	-25 / +20 °C	7	4	3	2	2	2	2	3	3	
	-40 / +20 °C	15	8	6	4	4	3	3	4	4	
Endurance	After applying rated working voltage for 2000 hours at +85°C and then being stabilized at +20°C, capacitors shall meet the following limits.										
	Capacitance change	±20% of initial measured value (±30% for φ3, 4 W.V., and miniaturized [suffix WR/WP] parts)									
	D.F.	≦ 200% of initial specified value									
	D.C.leakage current	≦ initial specified value									
Shelf Life	After storage for 1000 hours at +85ºC with no voltage applied and then being stabilized at +20°C, capacitor shall meet the limits specified in "Endurance." (With voltage treatment)										
Resistance to Soldering Heat	After reflow soldering (refer to Application Guidelines) and then being stabilized at +20°C, capacitor shall meet the following limits.										
	Capacitance change	±10% of initial measured value									
	D.F.	≦ initial specified value									
	D.C leakage current	≦ initial specified value									

■ Marking

Example;50V1μF(polarized)



■ Dimensions in mm (not to scale)



(mm)

Size code	φD	L	A	H	I	W	P	K
A	3.0	5.4	3.3	4.5MAX	1.5	0.55±0.1	0.6	0.35 +0.15 -0.20
B	4.0	5.4	4.3	5.5MAX	1.8	0.65±0.1	1.0	0.35 +0.15 -0.20
C	5.0	5.4	5.3	6.5MAX	2.2	0.65±0.1	1.5	0.35 +0.15 -0.20
D	6.3	5.4	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 +0.15 -0.20
D8	6.3	7.9	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 +0.15 -0.20
E	8.0	6.2	8.3	9.5MAX	3.4	0.65±0.1	2.2	0.35 +0.15 -0.20
F	8.0	10.2	8.3	10.0MAX	3.4	0.90±0.2	3.1	0.70 ±0.2
G	10.0	10.2	10.3	12.0MAX	3.5	0.90±0.2	4.6	0.70 ±0.2

■ Standard Products

● Polarized

w.v. / Cap.(μF)	4 (0G)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)	63 (1J)	100 (2A)
0.1							A,B		
0.22							A,B		
0.33							A,B		
0.47							A,B		
1.0							A,B		
2.2						A	A,B		
3.3						A	B		E
4.7					A,B	B	B,C		E,F
10				A,B	B,C	B,C	C,D	D	E,F
22	A	A,B	B	B,C	C,D	C,D	D,E	E,F	F,G
33	B	B	B,C	C	C,D	D,E	D8,E,F	F	G
47	B	B,C	C	C,D	D	D,E	D8,F,G	F	
100	C	C,D	C,D	D,E	D8,E,F	D8,F,G	F,G	G	
220	D	D	D8,E	D8,E,F	F,G	F,G	G		
330		D8,E	F	F,G	F,G	G			
470		F	F,G	F,G	G				
1000		F,G	G						
1500		G							

● Bi-polar

W.V. / Cap.(μF)	6.3 (0J)	10 (1A)	16 (1C)	25 (1E)	35 (1V)	50 (1H)
0.22						B
0.33						B
0.47						B
1.0						B
2.2					B	C
3.3				B		C
4.7			B	C	C	D
10		B	C	D	D	
22	C		D			
33		D				
47	D					

■ Standard Products

W.V [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Size [mm] D	L
4	22	ECEV0GS220SR	0.37	19	3	5.4
	33	ECEV0GA330SR	0.35	26	4	5.4
	47	ECEV0GA470SR	0.35	34	4	5.4
	100	ECEV0GA101SR	0.35	61	5	5.4
	220	ECEV0GA221SP	0.35	82	6.3	5.4
6.3	22	ECEV0JS220WR	0.35	20	3	5.4
		ECEV0JA220SR	0.26	29	4	5.4
	33	ECEV0JA330WR	0.35	29	4	5.4
	47	ECEV0JA470WR	0.35	36	4	5.4
		ECEV0JA470SR	0.26	46	5	5.4
	100	ECEV0JA101WR	0.35	47	5	5.4
		ECEV0JA101SP	0.26	71	6.3	5.4
	220	ECEV0JA221WP	0.35	74	6.3	5.4
	330	ECEV0JA331XP	0.26	150	6.3	7.9
		ECEV0JA331P	0.35	300	8	6.2
	470	ECEV0JA471P	0.35	380	8	10.2
	1000	ECEV0JA102UP	0.35	500	8	10.2
		ECEV0JA102P	0.35	700	10	10.2
	1500	ECEV0JA152P	0.35	700	10	10.2
10	22	ECEV1AA220WR	0.30	28	4	5.4
	33	ECEV1AA330WR	0.30	29	4	5.4
		ECEV1AA330SR	0.20	43	5	5.4
	47	ECEV1AA470WR	0.30	43	5	5.4
	100	ECEV1AA101WR	0.30	50	5	5.4
		ECEV1AA101SP	0.20	70	6.3	5.4
	220	ECEV1AA221XP	0.20	150	6.3	7.9
		ECEV1AA221P	0.26	250	8	6.2
	330	ECEV1AA331P	0.26	330	8	10.2
	470	ECEV1AA471UP	0.26	330	8	10.2
		ECEV1AA471P	0.26	400	10	10.2
	1000	ECEV1AA102P	0.26	580	10	10.2
16	10	ECEV1CS100SR	0.18	20	3	5.4
		ECEV1CA100SR	0.16	28	4	5.4
	22	ECEV1CA220WR	0.26	28	4	5.4
		ECEV1CA220SR	0.16	39	5	5.4
	33	ECEV1CA330WR	0.26	35	5	5.4
	47	ECEV1CA470WR	0.26	39	5	5.4
		ECEV1CA470SP	0.16	70	6.3	5.4
	100	ECEV1CA101WP	0.26	70	6.3	5.4
		ECEV1CA101P	0.20	200	8	6.2
	220	ECEV1CA221XP	0.16	150	6.3	7.9
		ECEV1CA221UP	0.20	200	8	6.2
		ECEV1CA221P	0.20	280	8	10.2
	330	ECEV1CA331UP	0.20	320	8	10.2
		ECEV1CA331P	0.20	380	10	10.2
	470	ECEV1CA471UP	0.20	320	8	10.2
		ECEV1CA471P	0.20	420	10	10.2
25	4.7	ECEV1ES4R7SR	0.16	12	3	5.4
		ECEV1EA4R7SR	0.14	22	4	5.4
	10	ECEV1EA100WR	0.20	22	4	5.4
		ECEV1EA100SR	0.14	28	5	5.4
	22	ECEV1EA220WR	0.20	35	5	5.4
		ECEV1EA220SP	0.14	55	6.3	5.4
	33	ECEV1EA330WR	0.20	42	5	5.4
		ECEV1EA330SP	0.14	65	6.3	5.4
	47	ECEV1EA470WP	0.20	70	6.3	5.4
		ECEV1EA470UP	0.16	70	6.3	5.7*
	100	ECEV1EA101XP	0.14	150	6.3	7.9
		ECEV1EA101UP	0.16	91	8	6.2
		ECEV1EA101P	0.16	180	8	10.2
	220	ECEV1EA221UP	0.16	140	8	10.2
		ECEV1EA221P	0.16	310	10	10.2
	330	ECEV1EA331UP	0.16	150	8	10.2
		ECEV1EA331P	0.16	340	10	10.2
	470	ECEV1EA471P	0.16	360	10	10.2

W.V [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Size [mm] D	L
35	2.2	ECEV1VS2R2SR	0.14	8	3	5.4
	3.3	ECEV1VS3R3SR	0.14	10	3	5.4
	4.7	ECEV1VA4R7SR	0.12	22	4	5.4
	10	ECEV1VA100WR	0.16	22	4	5.4
		ECEV1VA100SR	0.12	30	5	5.4
	22	ECEV1VA220WR	0.16	36	5	5.4
		ECEV1VA220SP	0.12	60	6.3	5.4
	33	ECEV1VA330WP	0.16	60	6.3	5.4
		ECEV1VA330UP	0.14	65	6.3	5.7*
		ECEV1VA330P	0.14	130	8	6.2
	47	ECEV1VA470WP	0.16	70	6.3	5.4
		ECEV1VA470P	0.14	165	8	6.2
	100	ECEV1VA101XP	0.12	130	6.3	7.9
		ECEV1VA101UP	0.14	140	8	10.2
		ECEV1VA101P	0.14	210	10	10.2
	220	ECEV1VA221UP	0.14	200	8	10.2
		ECEV1VA221P	0.14	310	10	10.2
	330	ECEV1VA331P	0.14	320	10	10.2
50	0.1	ECEV1HS0R1SR	0.14	1	3	5.4
		ECEV1HA0R1SR	0.12	1	4	5.4
	0.22	ECEV1HSR22SR	0.14	2	3	5.4
		ECEV1HAR22SR	0.12	2	4	5.4
	0.33	ECEV1HSR33SR	0.14	3	3	5.4
		ECEV1HAR33SR	0.12	3	4	5.4
	0.47	ECEV1HSR47SR	0.14	5	3	5.4
		ECEV1HAR47SR	0.12	5	4	5.4
	1	ECEV1HS010SR	0.14	8	3	5.4
		ECEV1HA010SR	0.12	10	4	5.4
	2.2	ECEV1HS2R2SR	0.14	10	3	5.4
		ECEV1HA2R2SR	0.12	16	4	5.4
	3.3	ECEV1HA3R3SR	0.12	16	4	5.4
	4.7	ECEV1HA4R7WR	0.14	18	4	5.4
		ECEV1HA4R7SR	0.12	23	5	5.4
	10	ECEV1HA100WR	0.14	27	5	5.4
		ECEV1HA100SP	0.12	35	6.3	5.4
	22	ECEV1HA220WP	0.14	60	6.3	5.4
		ECEV1HA220UP	0.12	60	6.3	5.7*
		ECEV1HA220P	0.12	120	8	6.2
	33	ECEV1HA330XP	0.12	85	6.3	7.9
		ECEV1HA330UP	0.12	130	8	6.2
		ECEV1HA330P	0.12	140	8	10.2
	47	ECEV1HA470XP	0.12	90	6.3	7.9
		ECEV1HA470UP	0.12	150	8	10.2
		ECEV1HA470P	0.12	160	10	10.2
	100	ECEV1HA101UP	0.12	200	8	10.2
		ECEV1HA101P	0.12	250	10	10.2
	220	ECEV1HA221P	0.12	300	10	10.2
63	10	ECEV1JA100P	0.18	35	6.3	5.7*
	22	ECEV1JA220UP	0.18	40	8	6.2
		ECEV1JA220P	0.18	40	8	10.2
	33	ECEV1JA330P	0.18	45	8	10.2
	47	ECEV1JA470UP	0.18	45	8	10.2
	100	ECEV1JA101P	0.18	60	10	10.2
100	3.3	ECEV2AA3R3P	0.18	50	8	6.2
	4.7	ECEV2AA4R7UP	0.18	50	8	6.2
		ECEV2AA4R7P	0.18	80	8	10.2
	10	ECEV2AA100UP	0.18	50	8	6.2
		ECEV2AA100P	0.18	85	8	10.2
	22	ECEV2AA220UP	0.18	70	8	10.2
		ECEV2AA220P	0.18	90	10	10.2
	33	ECEV2AA330P	0.18	90	10	10.2

tan δ = at 120Hz/+20°C, Ripple current = at 120Hz/+85°C

* Shows φ6.3x6.0 mm max. special size

Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

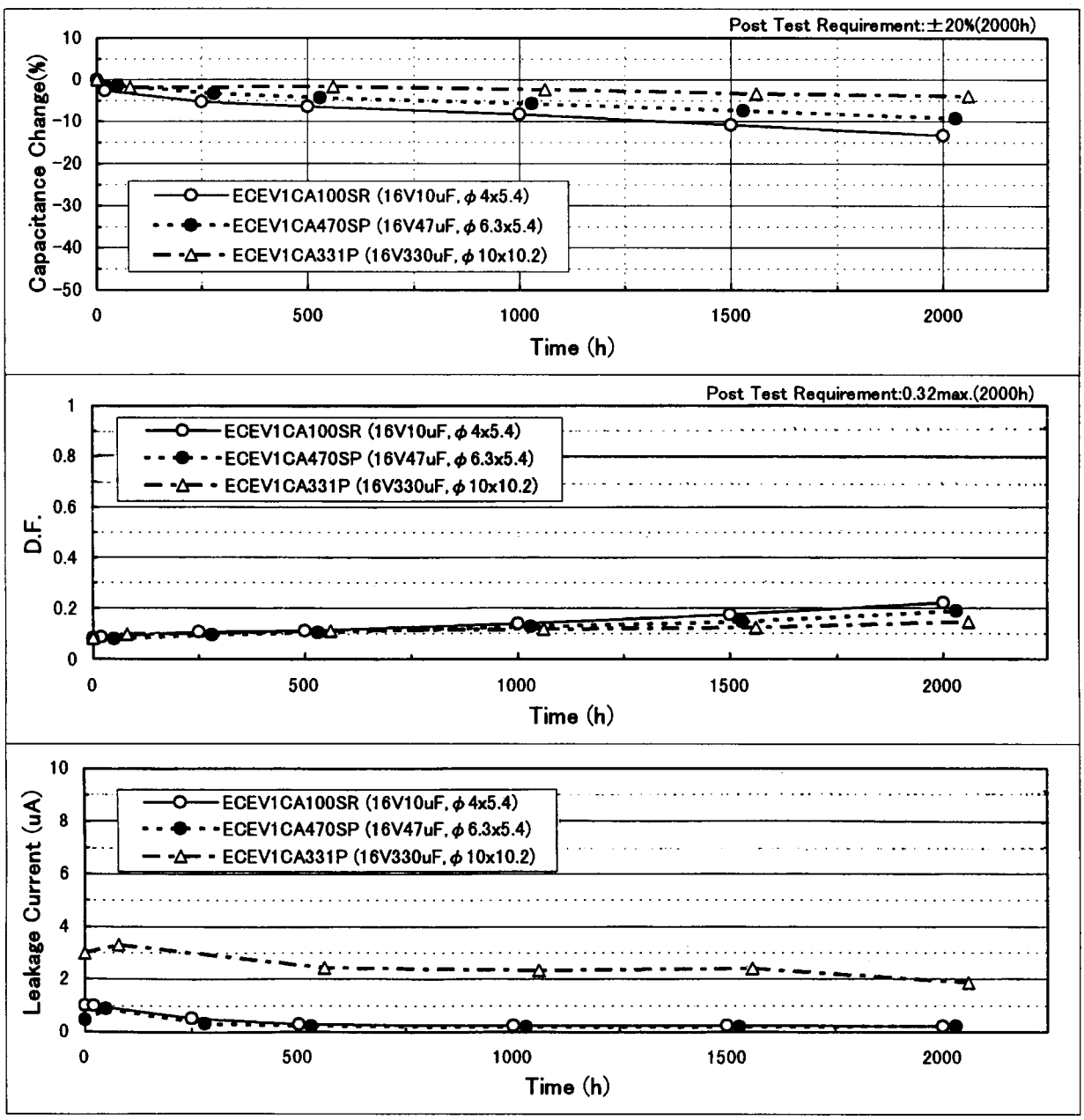
■ Standard Products (Bi-polar)

W.V [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Size [mm] D	L
6.3	22	ECEV0JA220NR	0.52	29	5	5.4
	47	ECEV0JA470NP	0.52	46	6.3	5.4
10	10	ECEV1AA100NR	0.40	25	4	5.4
	33	ECEV1AA330NP	0.40	43	6.3	5.4
16	4.7	ECEV1CA4R7NR	0.32	20	4	5.4
	10	ECEV1CA100NR	0.32	25	5	5.4
	22	ECEV1CA220NP	0.32	39	6.3	5.4
25	3.3	ECEV1EA3R3NR	0.28	12	4	5.4
	4.7	ECEV1EA4R7NR	0.28	21	5	5.4
	10	ECEV1EA100NP	0.28	28	6.3	5.4

W.V [V.DC]	Cap. [μF]	Part No.	tan δ	R.C. [mA rms]	Size [mm] D	L
35	2.2	ECEV1VA2R2NR	0.24	12	4	5.4
	4.7	ECEV1VA4R7NR	0.24	22	5	5.4
	10	ECEV1VA100NP	0.24	30	6.3	5.4
50	0.22	ECEV1HAR22NR	0.24	2	4	5.4
	0.33	ECEV1HAR33NR	0.24	3	4	5.4
	0.47	ECEV1HAR47NR	0.24	5	4	5.4
	1	ECEV1HA010NR	0.24	10	4	5.4
	2.2	ECEV1HA2R2NR	0.24	16	5	5.4
	3.3	EEVNZ1H3R3R	0.24	21	5	5.4
	4.7	ECEV1HA4R7NP	0.24	31	6.3	5.4

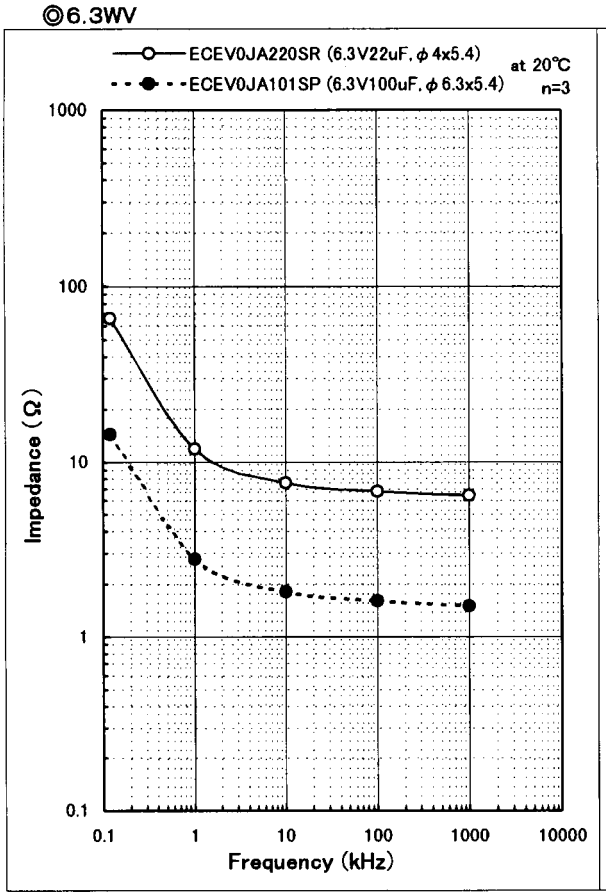
tan δ = at 120Hz/+20°C, Ripple current = at 120Hz/+85°C

■ Load Life Data

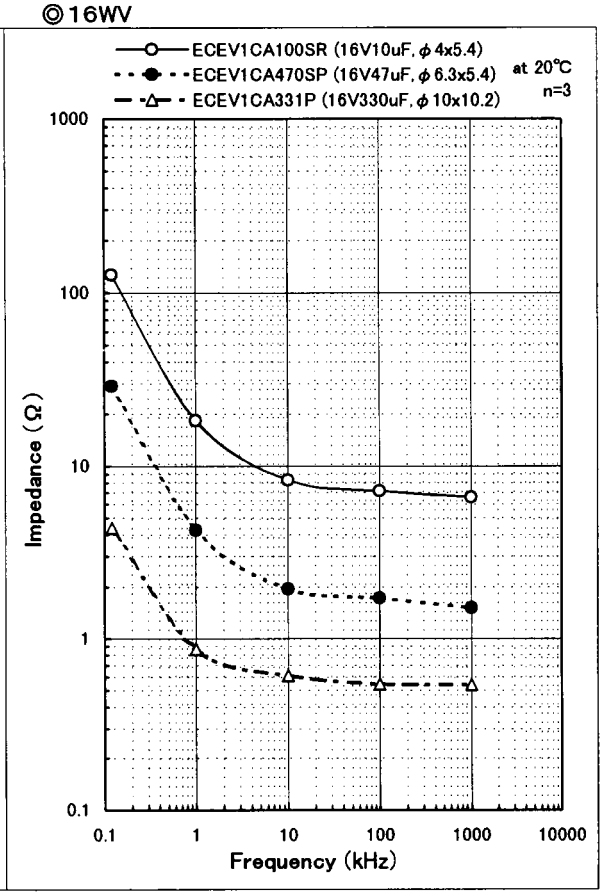


■ Frequency Characteristics Data

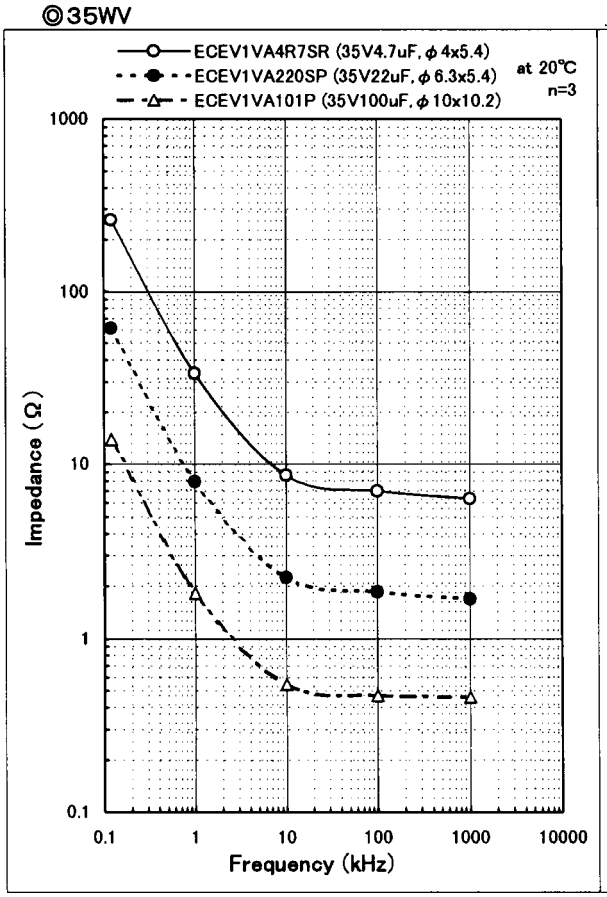
◎6.3WV



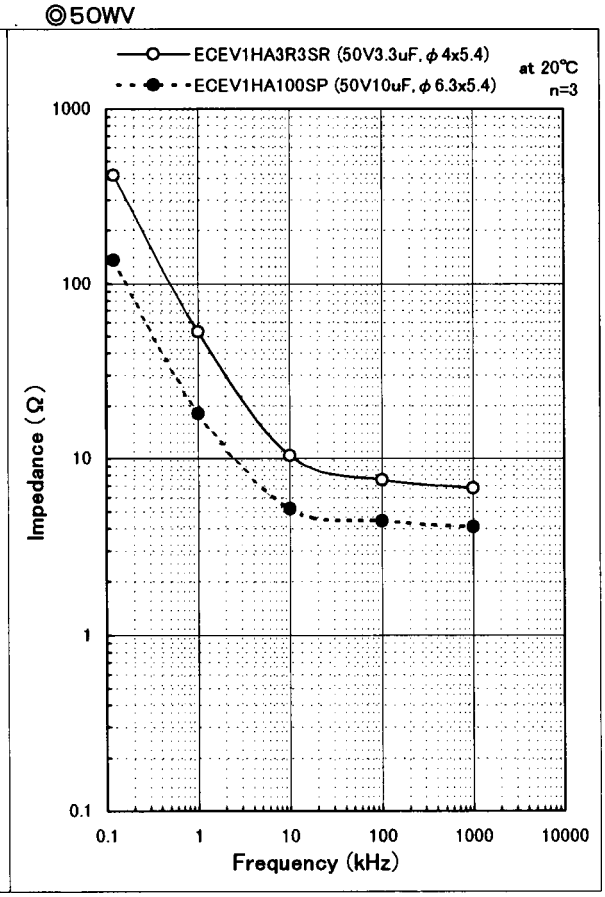
◎16WV



◎35WV



◎50WV



Design and specifications are subject to change without notice. Ask factory for technical specifications before purchase and/or use.
Whenever a doubt about safety arises from this product, please contact us immediately for technical consultation.

■ Temperature Characteristics Data